Amendments to the claims

Please amend the claims as follows:

1. (Currently amended) A method for providing an indication of risk of a loan contemporaneously with origination of the loan, the method comprising the steps of:

receiving mortgage loan data for an applicant for a loan, said mortgage data including data regarding occurrence of an event relevant to the loan and also time to the event;

analyzing the received data utilizing a proportional hazards model to take into consideration not only the occurrence of an event relevant to the loan, but also the time to the event;

computing the indication of risk for the loan <u>using a computer with memory</u>; and transmitting the computed default probability <u>for the loan</u>.

- 2. (Original) The method of claim 1 wherein the indication of risk is a probability of default.
- 3. (Original) The method of claim 1 wherein the proportional hazards model is of the form: $h(t \mid Z) = h_0(t) * \exp(\beta^T Z)$, where h(t) is a hazard rate at time t, Z is a vector of covariates, and β is a vector of regression coefficients.
- 4. (Original) The method of claim 3 wherein the hazard rate represents a risk of default.
- 5. (Original) The method of claim 4 wherein the hazard rate is represented by a binary variable which indicates whether default was observed or not, and a time observed variable.
- 6. (Original) The method of claim 5 wherein the time observed variable is either a time to default or if default did not occur, a time until observation was censored.

- 7. (Original) The method of claim 5 further comprising the step of: storing in a database the binary variables and the time observed variables for a plurality of past loans.
- 8. (Original) The method of claim 1 further comprising the step of:
 additionally analyzing the received data utilizing a hat function model to allow nonlinear effects to be modeled in a continuous fashion.
- 9. (Original) The method of claim 8 wherein an independent variable, X, is mapped to a series of independent variables X_i which meet the constraints that X_i is a continuous variable over the range [0, 1] and each X_i is defined by a fuzzy membership function.
- 10. (Original) The method of claim 1 further comprising the step of:

 transmitting a report to a potential loan originator including the indication of risk and
 highlighting a variable or variables recognized as contributing to the computed indication of risk
 in a substantial way.
- 11. (Original) The method of claim 10 wherein the indication of risk is a probability of default.
- 12. (Currently amended) A method for predicting an indicator of the risk of a loan contemporaneously with origination of the loan, the method comprising the steps of:

determining a set of mortgage origination data to be analyzed;

storing the set of mortgage origination data in a database including the substep of storing two components for a subset of said set of mortgage origination data, said two components comprising a binary variable indicating whether an event was observed or not, and a time observed variable;

establishing and storing a hat function model for at least one independent variable X to be analyzed in which the independent variable X is mapped to a series of independent variables X_i which meet the constraints $\sum X_i = 1$ and the independent variables X_i are continuous variables over a range [0, 1], and each independent X_i is defined by a fuzzy membership function; receiving a request to compute the indicator of the risk for data for a loan applicant; and computing the indicator of the risk for said data utilizing the proportional hazards model and the hat function model, said computing being carried out using a computer with memory.

- 13. (Original) The method of claim 12 further comprising the step of:
 transmitting a mortgage report to a potential loan originator including the computed indicator of the risk.
- 14. (Original) The method of claim 12 wherein the indicator of the risk is a probability of default.
- 15. (Original) The method of claim 13 further comprising the step of:
 automatically analyzing said data to determine which variable or variables within said
 data contribute in a substantial way to the computed indicator of the risk; and
 including an identification of said variable or variables in the mortgage report.
- 16. (Original) The method of claim 12 further comprising the step of:
 regularly updating the stored set of mortgage origination data as additional data becomes available.
- 17. (Currently amended) A method for predicting an indicator of the risk of a loan contemporaneously with origination of the loan, the method comprising the steps of:

 receiving mortgage loan data for an applicant for a loan;

 analyzing the received data utilizing a hat function model;

computing the indicator of the risk for the loan, using a computer with memory; and transmitting the indicator of the risk.

- 18. (Original) The method of claim 17 wherein the indicator of the risk is a probability of default.
- 19. (Original) The method of claim 17 wherein the hat function model maps an independent variable, X_i to a series of independent variables X_i which meet the constraints that X_i is a continuous variable over the range [0, 1] and each X_i is defined by a fuzzy membership function.
- 20. (Original) The method of claim 17 further comprising the step of: additionally analyzing the received data utilizing a proportional hazards model of the form $h(t \mid Z) = h_o(t) * \exp(\beta^T Z)$, where h(t) is a hazard rate at time t, Z is a vector of covariates, and β is a vector of regression coefficients.
- 21. (Original) The method of claim 20 wherein the hazard rate represents a risk of default.
- 22. (Original) The method of claim 21 wherein the hazard rate is represented by a binary variable which indicates whether default was observed or not, and a time observed variable.
- 23. (Currently amended) The method of <u>claim</u> elaims 22 wherein the time observed variable is either a time to default or if default did not occur, a time until observation was censored.
- 24. (Original) The method of claim 22 further comprising the step of: storing in a database the binary variables and the time observed variables for a plurality of past loans.

- 25. (Original) The method of claim 17 further comprising the step of:

 transmitting a report to a potential loan originator including the indicator of the risk of default and highlighting a variable or variables recognized as contributing to the computed probability of default in a substantial way.
- 26. (Original) A system for predicting the default probability of a loan contemporaneously with origination of the loan, the system comprising:

a database storing the set of mortgage origination data including two components for a subset of said set of mortgage origination data, said two components comprising a binary variable indicating whether an event was observed or not, and a time observed variable;

a memory storing a hat function model for at least one independent variable X to be analyzed in which the independent variable X is mapped to a series of independent variables X_i which meet the constraints $\Sigma X_i = 1$ and the independent variables X_i are continuous variables over a range [0, 1], and each independent X_i is defined by a fuzzy membership function;

an input to receive a request to compute a probability of default for data for a loan applicant; and

a programmed computer to automatically compute the probability of default for said data utilizing the proportional hazards model and the hat function model.

- 27. (Original) The system of claim 26 further comprising:
- a communication mechanism for transmitting a mortgage report to a remote potential loan originator including the computed probability of default.
- 28. (Original) The system of claim 27 wherein the computer is further operable to automatically analyze said data to determine which variable or variables within said data

contribute in a substantial way to the computed probability of default; and to include an identification of said variable or variables in the mortgage report.

- 29. (Original) The system of claim 27 further comprising:
 means for regularly updating the stored set of mortgage origination data as additional
- 30. (Currently amended) A system for predicting a default probability of a loan contemporaneously with origination of the loan, the system comprising:

a server receiving mortgage loan data for an applicant for a loan;

data becomes available.

the server including a programmed processor operable to analyze the received data utilizing a software based proportional hazards model;

the server further operable to compute the default probability for the loan; and a communication mechanism to transmit the computed default probability.

- 31. (Original) The system of claim 30 wherein the proportional hazards model is of the form: $h(t \mid Z) = h_o(t) * \exp(\beta^T Z)$, where h(t) is a hazard rate at time t, Z is a vector of covariates, and β is a vector of regression coefficients.
- 32. (Original) The system of claim 30 wherein the hazard rate represents a risk of default.
- 33. (Original) The system of claim 32 wherein the hazard rate is represented by a binary variable which indicates whether default was observed or not, and a time observed variable.
- 34. (Original) The system of claim 33 wherein the time observed variable is either a time to default or if default did not occur, a time until observation was censored.
 - 35. (Original) The system of claim 33 further comprising:

a database storing the binary variables and the time observed variables for a plurality of past loans.

- 36. (Currently amended) The system of claim 30 wherein the server is further if further operable to analyze the received data utilizing a hat function model to allow nonlinear effects to be modeled in a continuous fashion.
- 37. (Original) The system of claim 36 wherein an independent variable, X, is mapped to a series of independent variables X_i which meet the constraints that X_i is a continuous variable over the range [0, 1] and each X_i is defined by a fuzzy membership function with said mapping stored in a memory.
 - 38. (Original) The system of claim 30 further comprising:

means for automatically generating and transmitting a report to a potential loan originator including the computed probability of default and highlighting a variable or variables recognized as contributing to the computed probability of default in a substantial way.

39. (New) A system for predicting a default probability of a loan contemporaneously with origination of the loan, the system comprising:

a server receiving mortgage loan data for an applicant for a loan;

the server including a programmed processor operable to analyze the received data utilizing a software based hat function model;

the server further operable to compute the default probability for the loan; and a communication mechanism to transmit the computed default probability.